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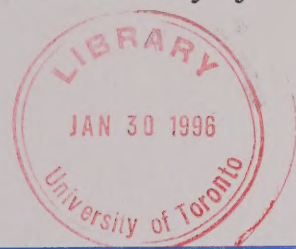
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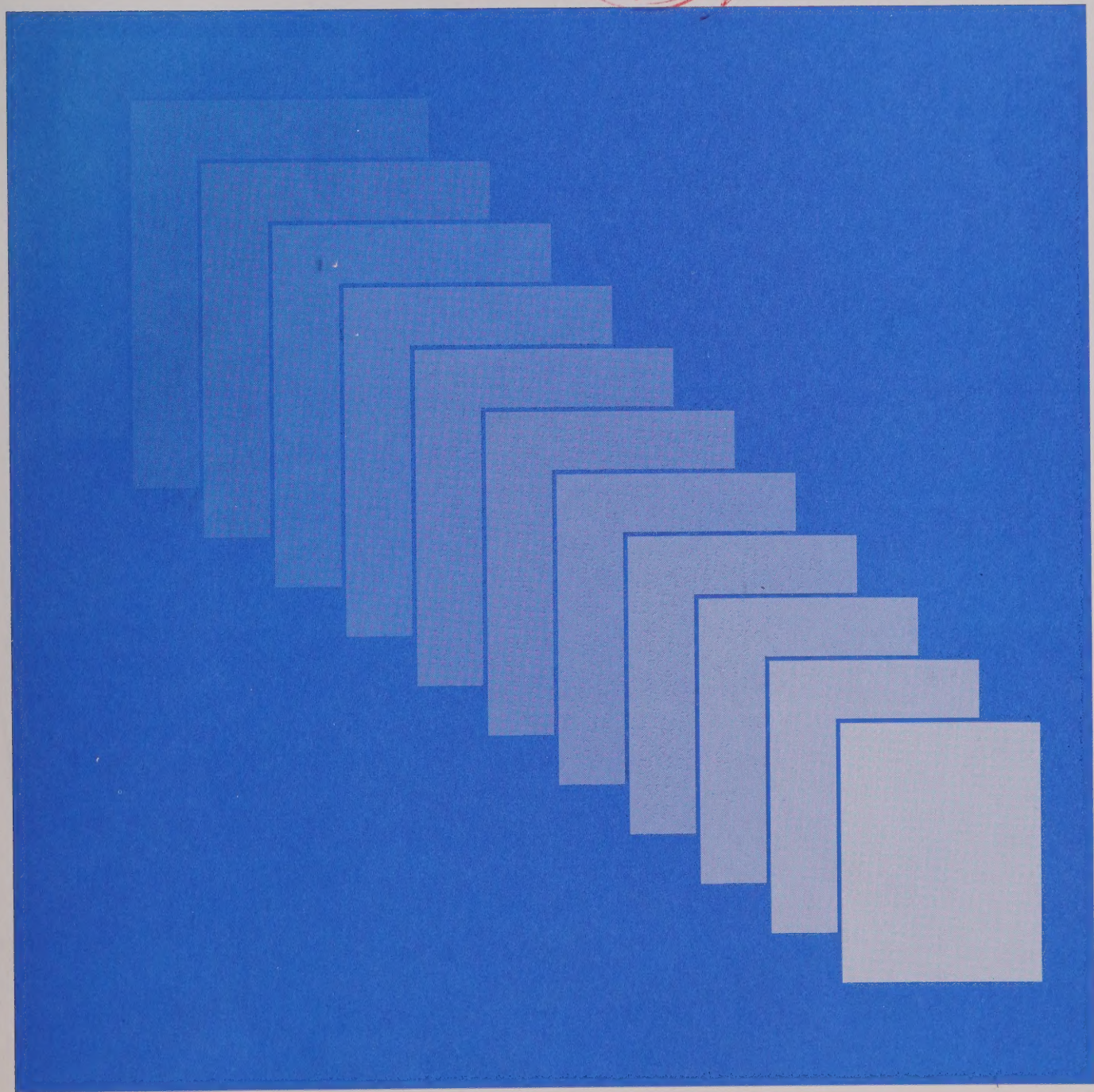
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The Intergenerational Income Mobility of Canadian Men

by Miles Corak and Andrew Heisz



No. 89



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This paper represents the views of the author and does not necessarily reflect the opinions of Statistics Canada.

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ABSTRACT

In this paper we use administrative data associated with the tax system to: (1) document the extent of intergenerational income mobility among Canadian men; and (2) estimate the income disadvantage (in adulthood) of being raised in a low income household. We find that there is considerable intergenerational income mobility in Canada among middle income earners, but that the inheritance of economic status is significant at both the very top and very bottom of the income distribution. About one-third of those in the bottom quartile were raised by fathers who occupied the same position in the income distribution. In fact, the income advantage of someone who had a father in the top decile over someone who had a father in the bottom decile is in the order of 40%. We also discuss some of the policy implications of these findings, as well as some of their limitations and the directions implied for future research.

KEY WORDS: Intergenerational income mobility, poverty, Canada



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Why does "child poverty," as opposed to just "poverty," carry such resonance as a policy issue? A cynic's answer would be that the notion of "child" poverty creates a politically acceptable class of deserving poor, and thereby gives some impetus to redistributive policies, an agenda that otherwise would not be given much priority. "Child poverty" is a slogan to aid the implementation of redistributive policy rather than a substantive concept to guide its formulation. There are, however, at least two reasons to question this perspective. The first is that even though families with children form a minority of the poor they may represent a disproportionate fraction of the persistently poor. That is to say while many families may slip into poverty for a brief period, it is those with children and especially those headed by single parents that may tend to experience extended periods of low income. The second reason, which offers much of the motivation for this paper, is that experiencing low income as a child may have long term implications. Being raised in a poor family somehow predisposes individuals to a lifetime of poverty: child poverty begets child poverty. In this sense, child poverty is an important element in the development of an "underclass" or a "culture of poverty," and as such should be at the centre of policy development (Kesselman, 1994).

To put the issue more generally, to what extent do individuals "inherit" their economic status? What is the economic advantage conferred to the offspring of the rich, and to what degree is low income passed on to subsequent generations? We don't really know, and as a result the focus of public policy on child poverty is - at least in this regard - supported not so much by established facts as by implicit assumptions.

These questions, which deal with what we refer to as "intergenerational income mobility," are the major concern of this paper. Intergenerational income mobility has been the subject of many US and European studies, but to the best of our knowledge there is no comparable Canadian literature. Much of the existing work, which is briefly reviewed in the following section, uses longitudinal survey data, and the lack of such data is probably the main reason for the dearth of Canadian research. We are able to overcome this limitation by relying upon administrative data associated with the tax system. Our results, which are described in the second section of the paper, are based upon the relationship between the adult incomes of a cohort of Canadian men who were 16 to 19 years of age in 1982 and living in households with a father present in that year. The analysis is restricted to fathers and sons in part to follow the existing literature on the subject, but also in recognition of the fact that we are attempting to develop a robust procedure that can be extended to women and households headed by single women. It should be recognized at the onset that much remains to be done, and the concluding section of the paper offers what we feel will be important directions in our future research.

Our major finding is that there is a great deal of intergenerational mobility in the economic status of Canadian men, and in particular more mobility than researchers have found in either the United States or the United Kingdom. Nonetheless, we find that having a father whose income was at the extremes of the income distribution confers significant economic advantage to the very rich over those with the lowest incomes. Those raised by middle income fathers (broadly defined) experience changes in economic status that reflect

equality of opportunity. We also find that the relationship between the income of a father and the adult income of the son is nonlinear. A marginal increase in a father's income does not appreciably increase the prospects of the son for those in the bottom ten percent of the income distribution. The largest return, in these terms, is to be found by marginally increasing the income of those families with earnings above this level up to about the median income.

A Review of Methods and Results

The existing literature has examined the extent of intergenerational income mobility in two complementary ways: by the construction of a transition matrix relating the child's position in the income distribution (as an adult) to the parent's position (at the time the child was being raised), and by estimation of the correlation between child and parent income.

Both approaches are strictly descriptive in nature. The derivation of a transition matrix involves dividing the population into equal sized groups ranked in order of income, and presenting the distribution of parents and children across these groups. A quartile transition matrix is the most popular in the literature, but narrower quantiles may also be informative. For example, Atkinson (1981) presents the following matrix estimated with British data. The elements along the diagonal of the matrix indicate the probability that a son will occupy (during adulthood) the same position in the income distribution as his father occupied, while those above the diagonal indicate probabilities of downward mobility and those below indicate probabilities of upward mobility. If there were complete equality of opportunity each element in this matrix would be 0.25. This is clearly not the case, but nonetheless there is a certain degree of mobility: fully one third of sons born to fathers in the bottom quartile rose to the top half of the income distribution. However, it is also clear that there is less mobility at the top and bottom of the distribution, with sons born to fathers at the two extremes of the income distribution much more likely to occupy the same position as adults than sons born to fathers with incomes in the second and third quartiles. Further, a move from "rags to riches" seems more likely than a move from "riches to rags." While a third of those from the bottom quartile rose by two classes or more, only a fifth from the top quartile fell by two classes or more.

QUARTILE		SONS			
		<i>Top</i>	<i>Third</i>	<i>Second</i>	<i>Bottom</i>
FATHERS	<i>Top</i>	0.50	0.29	0.15	0.06
	<i>Third</i>	0.19	0.27	0.36	0.18
	<i>Second</i>	0.17	0.25	0.26	0.32
	<i>Bottom</i>	0.14	0.19	0.23	0.44

The general patterns are the same in the US, with the exception that there appears to be more mobility at the top quartile. For example, Peters (1992) offers the following transition matrix. Sons born to fathers with incomes in the top quartile are less likely to be in the top quartile, and more likely to have fallen to the bottom. Even so offspring of the

rich have a clear tendency to also be rich, while offspring of the poor have a clear tendency to also be poor.

QUARTILE		SONS			
		<i>Top</i>	<i>Third</i>	<i>Second</i>	<i>Bottom</i>
FATHERS	<i>Top</i>	0.40	0.25	0.20	0.15
	<i>Third</i>	0.29	0.29	0.24	0.18
	<i>Second</i>	0.19	0.27	0.29	0.26
	<i>Bottom</i>	0.12	0.19	0.28	0.42

The second approach involves the estimation of an autoregressive model and is complementary to the use of transition matrices. It offers a numerical estimate of the income advantage of having a high income father. A child's income is expressed as a (linear) function of his father's income. If Y represents permanent income (generally measured in logarithms), t the child's generation, and $t-1$ the parent's generation then the standard model is assumed to be:

$$Y_i(t) = \beta_0 + \beta_1 Y_i(t-1) + \varepsilon_i \quad (1)$$

where the data are at the individual level, i denotes a father-son pair, and ε_i is a random component. The constant term represents the change in income common to generation t , while the coefficient β_1 indicates the extent to which income levels are related to those of the fathers, that is the extent of intergenerational mobility.

An accurate estimate of β_1 is the main concern of studies that adopt this approach. If β_1 is less than one then the income distribution is said to regress to the mean: while fathers with incomes above (or below) the mean will have children with above (or below) average income levels the deviation from the mean will not be as great. This should not be too astounding in advanced industrialized societies. If it were not the case the total income of an economy would eventually be earned by only a few individuals. However, the larger β_1 (even if it is less than one) the more likely that an individual as an adult will inhabit the same economic position as his father, that is, the greater the persistence in intergenerational income levels. Even small values of β_1 imply substantial advantages to the children of the well off. For example, if the income levels in the above relationship are expressed as natural logarithms then β_1 represents the elasticity of a child's income with respect to the parental income, and the income advantage conferred to someone born to a father with income in the top quintile relative to someone born to a father with income in the bottom quintile for different values of β_1 is as follows:¹

¹ In Canada during 1981 the ratio of the average income of males (working full-year, full-time) in the top quintile to those in the bottom quintile was 3.84. This ratio is used to obtain the tabulated results.

β_1	0.1	0.2	0.3	0.4	0.5
Income Advantage	14%	31%	50%	71%	96%

A β_1 of only 0.1 would imply that children born to those in the top quintile will on average earn 14% more than those born to parents in the bottom quintile. This differential is equivalent to about 2 years of extra schooling, about (if not greater) than the male-female earnings differential due to discrimination, and almost double the premium of having a unionized job versus a non-unionized job. However, with a value this low the income advantage would be erased within a generation so that an individual's income would be independent of his or her grandparents'. With higher values of β_1 the income advantage of the rich is much larger than any other determinant of income in the empirical literature. Clearly this parameter is a very important indicator of how the labour market functions.

Models like equation (1) have been estimated with data from a number of countries, but the research with US data is the most extensive. Behrman and Taubman (1990), Peters (1992), Solon (1992), and Zimmerman (1992) represent some recent examples, while earlier research covering several countries in addition to the US is summarized in Becker and Tomes (1986). The latter suggest that a consensus value for β_1 seems to be 0.2. These findings, however have been criticized as being biased because of measurement error and sample selection problems.² Behrman and Taubman (1990) and Solon (1992) correct for these problems and estimate β_1 to be about 0.4, the former offering a preferred value as high as 0.6. Zimmerman (1992) also reports an estimate of 0.4, but Peters (1992) using the same data obtains estimates that vary between 0.1 and 0.2. Research from other countries is more limited. Atkinson (1981) provides evidence based on data from a single British city that β_1 is about 0.4, while Gustafsson (1994) and Björklund and Jänti (1993) studying Swedish data obtain an estimate of 0.2 and 0.25 respectively.

The value of the transition matrix is that it offers a more detailed depiction of mobility. The examples offered above, which are typical of other examples in the literature, clearly indicate a non-linearity in the pattern of mobility. The possibility of these kinds of non-linearities have also been noted by researchers estimating autoregressions. Solon (1992) augments equation (1) with the square of the father's income, but finds, in large part because of the small size of his sample, that it is not significant. This is in contrast with the results of Behrman and Taubman (1990). In a similar specification they find that only the quadratic term is significant, and that it implies higher elasticities the higher the parents' income. Peters (1992) uses income squared and cubed and finds they are jointly

² It is important when estimating equation (1) that income be measured so that it reflects the permanent income level of the parent. Relying upon a measure that is not corrected for transitory fluctuations or reporting error will bias the estimate of β_1 downward, especially when the sample chosen is overly homogenous. These biases are outlined in Atkinson, Maynard, and Trinder (1983), Jenkins (1987), and Solon (1989, 1992).

significant, but she does not provide the coefficient estimates nor a detailed analysis of the nature of the non-linearities.

It should be noted that the breadth of the existing literature is not as great as the number of studies would suggest. The data for all of the US surveys are based on only two different surveys (either the Panel Study of Income Dynamics or the National Longitudinal Survey) and upon sample sizes that can be quite small. As an example, Solon (1992) uses a sample of 348 father-son pairs from the PSID, while Zimmerman (1992) uses 876 from the NLS. Some of the sample sizes in Cooper *et al.* (1993) are less than 100 observations. Given that most researchers are using the same data sets, the small sample size in the context of specification and measurement problems contributes to the wide diversity of estimates obtained. The studies from other countries also employ small samples that may not be representative of the entire population.

Perhaps the most striking issue, from our perspective, is the lack of any Canadian analyses using either of these approaches. To our knowledge the issue of intergenerational income mobility has not been examined at all by Canadian economists, and while numerous sociological studies exist, they deal with "social mobility," and are concerned with changes in occupational or educational status between parents and children. Examples include Béland (1987), Creese, Guppy, and Meissner (1991), Fournier, Butlin, and Giles (1995), Isajiw, Sev'er, and Driedger (1993), and McRoberts and Selbee (1981). Boyd *et.al.* (1981) provide an analysis that is closest in spirit to those described above, discussing the correlation between educational attainment and occupational status of fathers with sons and daughters stratified by ancestry and language. This being said we do know that low income is associated with a host of outcomes that will likely influence future earning prospects adversely. Ross (1995), for example, documents the fact that child poverty is associated with lower birth weights and poorer health in general, as well as with higher drop out rates, and higher rates of both pregnancy and substance abuse among teenagers.

Some Results

In contrast to much of the existing literature we employ income information drawn from administrative records. This frees our analysis from several limitations associated with the use of survey data. Our sample size is very large, it is representative of the population, and it is not subject to problems of attrition or reporting errors. We examine a cohort of males aged 16 to 19 years of age in 1982 who filed an income tax return at some point between 1982 and 1986 (while still at home), and who had a "father" present during that year.³ The start year of 1982 is forced upon us because this is the first year in which family linkages are available through the tax records. This linkage is produced as a part of the construction of the T1 Family File (T1FF) by the Small Areas and Administrative Data Division of Statistics Canada (Harris and Lucacia, 1994). Among other things the T1FF

³ The "father" is not necessarily the biological father, but should rather be thought of as the male household head.

permits us to identify fathers and sons. Further, we are able to trace the incomes of the fathers back to 1978, and the incomes of sons forward to 1993, when they were 27 to 30 years of age. To remain in the sample the sons must have filed an income tax return in 1993, and not been a full time student. The data come close to representing the universe of individuals in this age group. (We capture about 85 per cent of all individuals who were in this cohort). Income is defined as gross income from all sources including government transfers, and is expressed in constant 1986 dollars.⁴

A detailed discussion of the data and a host of technical issues associated with their use is offered in Corak and Heisz (1995). We focus here on presenting the most reliable results from this longer more technical paper. The version of the data set used in obtaining them includes 440,929 father-son pairs, with the father's income being defined as the average income earned over the five year period extending from 1978 to 1982, and the son's income as that earned in 1993. A five year average is used as a measure of father's income in order to minimize the influence of transitory shocks, and obtain as accurate an estimate of permanent income as possible. This is an issue only for fathers. Finally, we make adjustments for the fact that the individuals in our sample, particularly the fathers, are at different stages in the life cycle.⁵

A quartile transition matrix is offered as Table 1. While the general patterns found in the US and UK are present, there would appear to more intergenerational income mobility in Canada. The values in the matrix are almost all closer to 0.25 than in either of the other countries.⁶ Individuals born to fathers with incomes in the tails of the income distribution are certainly more likely to also have incomes in the tails, but not to the same extent as in the US and the UK. Almost 36% of sons born to fathers in the top quartile also had earnings in the top quartile, versus 50% in the UK and 40% in the US. The same figures

⁴ Some minor adjustments are made to the income of fathers in order to recognize expense deductions that were not available to sons because of changes to the tax structure. The major component of income missing from these data are social assistance payments. In future work we plan to use different definitions of income: net of transfers, family income, and needs adjusted family income.

⁵ Specifically, the data used are the residuals from the regression $Y_i = \gamma_0 + \gamma_1 \text{Age} + \gamma_2 \text{Age}^2$, where i =father or son and Y represents the level of income (expressed in constant 1986 dollars). The average age of fathers in 1980 was 46 years.

⁶ This is also illustrated by the immobility index for these matrices, which is defined as the ratio of the sum of the elements along the diagonal to the sum of all elements. In this way it represents the probability that the son will occupy the same position as the father. If there were perfect mobility this index would be 0.25, and if there were no mobility at all it would be 1. The actual figures are: UK 0.3675; US 0.350; and Canada 0.3066. It can also be shown, following the method proposed by Atkinson (1981), that the Canadian transition matrix is superior to those of the US or UK for any social welfare function. At the same time it should be emphasized that the transition matrices are derived from very different types of data and may not be comparable. The U.K. data come from the replication of a survey conducted in the 1950s for the city of York, and may not be representative of the country as a whole. The U.S. data are based upon a longitudinal survey that may embody recall and attrition biases. As such these intercountry comparisons should be treated as suggestive rather than conclusive.

Table 1: INTERGENERATIONAL INCOME MOBILITY BY INCOME QUARTILES

QUARTILE		SONS			
		<i>Top</i>	<i>Third</i>	<i>Second</i>	<i>Bottom</i>
FATHERS	<i>Top</i>	0.358	0.252	0.193	0.197
	<i>Third</i>	0.275	0.268	0.237	0.220
	<i>Second</i>	0.209	0.259	0.274	0.258
	<i>Bottom</i>	0.158	0.221	0.296	0.325

Life cycle adjusted data from the full sample of fathers and sons with 440,929 observations.
Immobility index = 0.3066.

at the bottom end of the income distribution are respectively 33%, 44% and 42%. In fact, the move from rags to riches seems less likely than that from riches to rages. In contrast, the middle part of the income distribution is characterized by close to perfect mobility. This is also true in the US and UK, but more so in Canada.

A finer disaggregation indicates distinct asymmetries at the very extremes of the income distribution. This is illustrated by the transition matrix defined by deciles, which is presented in Table 2 and graphically as Figure 1. Almost 20% of those born to fathers with incomes in the top 10% of the income distribution also earned incomes that placed them in this decile, while 14% of those born in the bottom decile remain at the bottom. Exactly one-third of the sons born to fathers with incomes in the top 10% have earnings that place them at the same level as their fathers or one step below. Similarly for those born at the bottom: 28.9% percent are also at the bottom or have advanced by only one decile. The chances of falling or rising a decile in the income scale are much closer to perfect mobility in the middle parts of the income distribution, but downward mobility is slightly more likely for those in the lower half of the income distribution while upward mobility is more likely for those in the upper half. The chances of falling two deciles or more are uniformly higher for those born to fathers in the 3rd to 5th deciles than to those born in the 6th to 8th. The opposite pattern holds for the chances of rising two deciles or more. The 1980s and 1990s have been characterized by stagnant real wages and increasing polarization of incomes. As Myles *et.al.* (1988), and Morissette *et.al.* (1994) have shown these have been particularly turbulent years for the young just beginning their careers. Our results suggest that over this period those with upper middle income fathers have fared slightly better than those with lower middle income fathers.

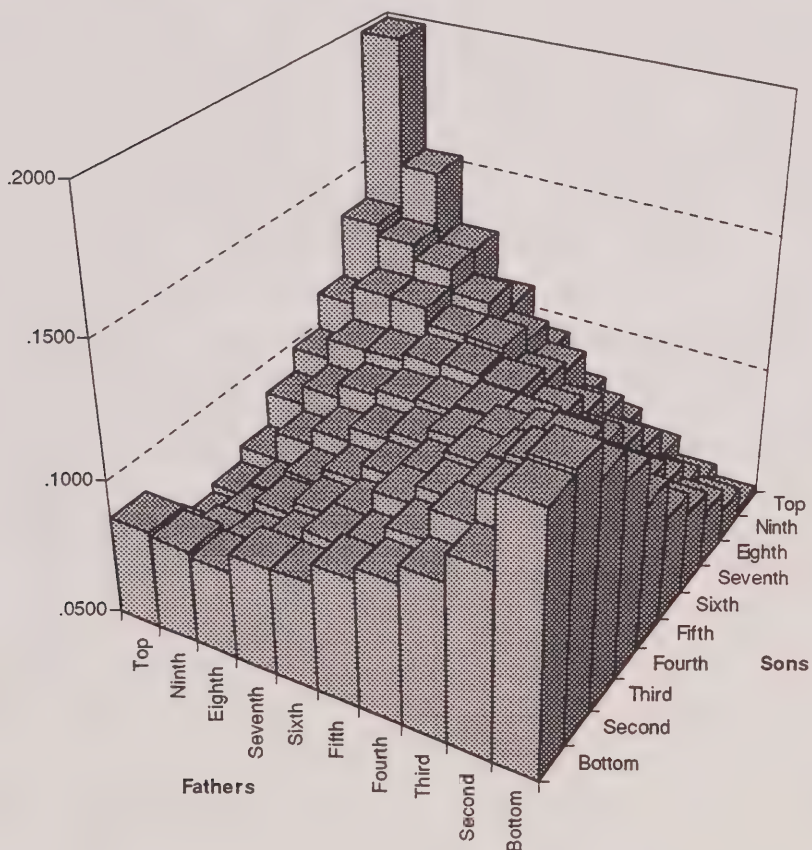
Table 2: INTERGENERATIONAL INCOME MOBILITY BY INCOME DECILES

DECILE

		SONS									
		<i>Top</i>	<i>9th</i>	<i>8th</i>	<i>7th</i>	<i>6th</i>	<i>5th</i>	<i>4th</i>	<i>3rd</i>	<i>2nd</i>	<i>Bottom</i>
F A T H E R S	<i>Top</i>	0.198	0.135	0.111	0.098	0.088	0.075	0.069	0.067	0.071	0.086
	<i>9th</i>	0.152	0.131	0.119	0.106	0.096	0.086	0.075	0.075	0.077	0.084
	<i>8th</i>	0.126	0.125	0.118	0.106	0.101	0.092	0.085	0.083	0.080	0.082
	<i>7th</i>	0.108	0.117	0.112	0.109	0.103	0.098	0.091	0.088	0.086	0.089
	<i>6th</i>	0.093	0.106	0.112	0.110	0.105	0.101	0.098	0.093	0.093	0.090
	<i>5th</i>	0.079	0.098	0.102	0.108	0.107	0.106	0.103	0.103	0.096	0.097
	<i>4th</i>	0.071	0.085	0.094	0.102	0.107	0.111	0.113	0.110	0.106	0.102
S O N S	<i>3rd</i>	0.064	0.076	0.086	0.096	0.106	0.115	0.117	0.116	0.117	0.108
	<i>2nd</i>	0.057	0.066	0.076	0.087	0.099	0.111	0.127	0.131	0.129	0.118
	<i>Bottom</i>	0.052	0.062	0.070	0.080	0.089	0.104	0.121	0.133	0.145	0.144

Life cycle adjusted data from the full sample of fathers and sons with 440,929 observations.
The 95% confidence interval for a test of a value significantly different from 0.1 is 0.103 to 0.097.
Immobility Index = 0.1268.

Figure 1: TRANSITION MATRIX BY INCOME DECILES



At the same time the chances of falling one or two deciles for those born at the top are about the same as the chances of rising one or two deciles for those born at the bottom. The probabilities of climbing further for those born at the bottom declines steadily with each decile to a 5.2% chance of reaching the top decile. The chances of falling for those born at the top also gets smaller and smaller the greater the fall, but rise at the bottom two deciles. The chances that someone born to a father with earnings in the top 10 per cent will have earnings that places him at the 3rd decile is 6.7%, but 7.1% at the 2nd decile, and 8.6% for the bottom decile. The increase in the chance of dropping to the very bottom may be due to our focus on income as opposed to wealth. It is possible that some of the offspring of the very rich, anticipating a significant inheritance or living off the income generated by one already received, are not inclined to participate as actively in the labour market.

These results suggest that while there is considerable intergenerational income mobility in the Canadian labour market, those with fathers at the extremes of the income distribution are in some sense particularly advantaged or particularly disadvantaged. In order to obtain an estimate of the extent of this advantage/disadvantage we estimate a series of models along the lines of equation (1) using least squares. In particular, the estimating equations we use are:

$$Y_i(t) = \beta_0 + \beta_1 Y_i(t-1) + \epsilon_i \quad (1a)$$

$$Y_i(t) = \beta_0 + \beta_{11} Y_i(t-1) + \beta_{12} Y_i^2(t-1) + \epsilon_i \quad (1b)$$

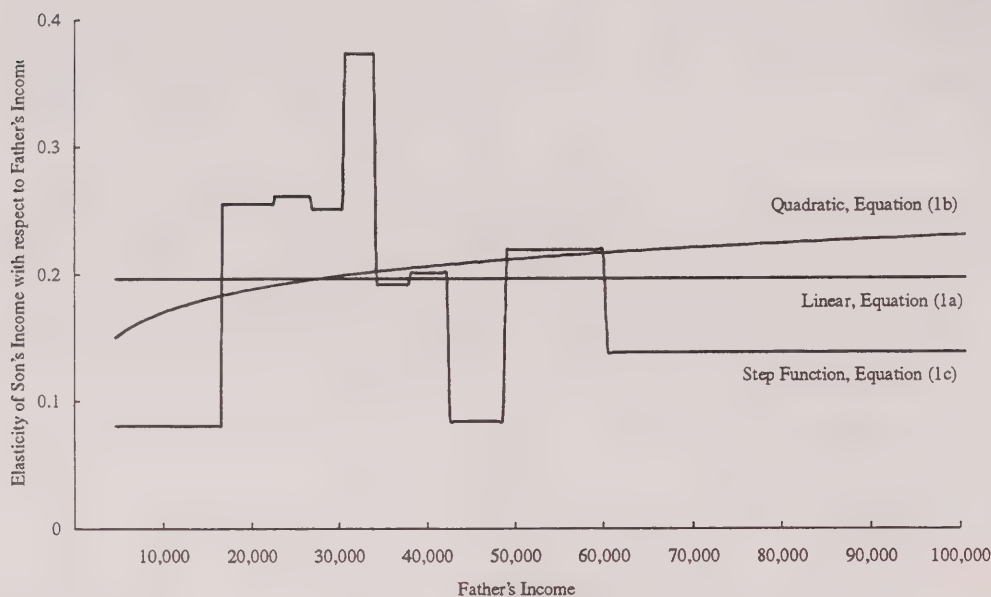
$$Y_i(t) = \sum_{j=1}^{10} \beta_{0j} + \sum_{j=1}^{10} \beta_{1j} d_j Y_i(t-1) + \epsilon_i \quad (1c)$$

Equation (1a) is the standard model used in the literature, while equation (1b) incorporates a quadratic in father's income. As mentioned the latter is found in some existing studies in order to control for possible non-linearities in the relationship. The small sample sizes in some of these studies preclude the use of more flexible ways of capturing non-linear effects, in particular the use of a step function as in equation (1c). This model permits both the constant term and β_1 to differ by income decile. In this case $j=1...10$ indexes the income decile of the father, and d_j is a series of indicator variables that equal 1 if the father's income falls in decile j but 0 otherwise.

Figure 2 depicts the parameter estimate of prime concern from each of the models, the elasticity of the son's income with respect to the father's income. The full results of these regressions are presented in Corak and Heisz (1995). Equation (1a) leads to an estimate of 0.196, while that from equation (1b) suggests slightly lower values at lower incomes and slightly higher values at higher incomes. Both of these results are contradicted by those from equation (1c), the most flexible model. Roughly, these results suggest that the elasticity is lower at the bottom and top deciles than over the middle deciles. The exception is the estimate of 0.0838 obtained for the eighth decile. However, this estimate is characterized by a particularly large standard error (0.104), and not significantly

different than the estimates for the neighbouring deciles. In fact, the coefficients for the second to ninth deciles all lie within two standard deviations of each other, but those for the top and bottom decile are significantly less. The data seem to be suggesting that there are three regimes: the top, the bottom, and the middle, where top and bottom are defined rather narrowly.

Figure 2



These coefficients do not carry exactly the same interpretation as those from equation (1). For example, a value close to zero, such as 0.0804 for the bottom decile depicted in Figure 2, indicates rapid regression to the mean *for that decile*. The expected income of someone born to a father with income in the bottom decile is the average income of those belonging to this group. Furthermore, this finding would suggest that a marginal increase in the father's income will not improve the prospects of the son. This might be due to the possibility that any marginal increases in income are entirely consumed by the family rather than invested in human capital that could increase future earnings of the children, a plausible scenario if the family is at a subsistence level of income (and if father's income accurately represents family income). This is in contrast with those born at other points in the income distribution, particularly the lower middle class (from the second to the fifth decile). The stronger relationship between father and son income for these groups might be interpreted as indicating a much higher propensity to invest family income in the child's human capital, or less costly access to funds in order to undertake such investment. The decline in the elasticity at the very top of the income distribution may be suggesting that the very rich have invested all they desire in the human capital of their children so that any additional increases in income are either consumed or invested in financial assets.

The results of equation (1c), being much more general than the linear model or quadratic model, are preferred and probably permit the most accurate estimate of the income advantage conferred to the sons of the well-off. Accordingly, the income differential between someone born to a father with income at the 90th percentile to someone born to a father at each of the other deciles is:

Percentile	80th	70th	60th	50th	40th	30th	20th	10th
Income Advantage	4.6%	9.2%	11.1%	14.9%	19.6%	23.3%	28.9%	38.9%

An individual born to a father with income at the 90th percentile earns 4.6% more than someone born at the 80th. This income advantage increases by about 4 to 5 percentage points for each subsequent decile reaching 28.9% for someone born to a father at the 20th percentile. However, it jumps by 10 percentage points to reach almost 39% for someone born to a father at the 10th percentile. The lowest 10% of the population are the most disadvantaged, but even at the median the income advantage of having a rich father, at 15%, is still substantial.

Conclusions and Caveats

We do two things in this paper: (1) document the extent of intergenerational income mobility among Canadian men; and (2) estimate the income disadvantage of being born to a low income father. We find that there is considerable intergenerational income mobility in Canada, implying that the labour market for men is characterized - in the large - by equality of opportunity.

However, there are at least two reasons to be less than completely sanguine about these results. First, the extremes of the income distribution are "sticky." Those born to fathers with earnings in the top 25% of the income distribution are much more likely to also be at the top. Likewise those born to fathers with earnings in the bottom 25% are more likely to be at the bottom. About one-third of those in the bottom quartile were raised by fathers who occupied the same position. While this tendency is not as severe as that reported by some researchers for the US and UK, it nonetheless suggests that low income may lead to a vicious circle that perpetuates itself for at least another generation. In fact we estimate that the income advantage of someone who had a father in the top decile over someone who had a father in the bottom decile to be in the neighbourhood of 40%.

The reason is that even though there is considerable intergenerational income mobility among the sons of middle income earners, there is a slight tendency for the offspring from the upper half of the income distribution to rise and for the offspring from the lower half to fall. That is, the increasing polarization of incomes observed over the last decade and a half - the shrinking of the middle class - may have been to the benefit of the children of the upper middle and to the detriment of those from the lower middle.

These results tend to give credence, in a general way, to the importance attached by many to fighting child poverty. At the same time, however, they fall short of offering explicit guidelines for the conduct of policy. For example, on the basis of our findings it might be argued that government transfers to low income families be made a priority. On the other hand, however, the finding that the strength of the correlation between fathers' and sons' income varies non-linearly (being lowest for those born to fathers at the very bottom and top of the income distribution, and highest for those in between, especially around the median) may lead some to speculate that a *marginal* increase in income would have its greatest impact on the future income of the child for those fathers at the median income. This is not to suggest that transfers to the poorest cannot be justified in other terms, only that the intergenerational argument in their favour may be limited. However, if the reason for the low degree of correlation between father and son income at the very bottom of the income distribution has to do with the fact that the household is at a subsistence level (so that any marginal additions to income are consumed out of necessity rather than invested in the future well being of the children) then it might also be suggested that governments should increase income levels more than just marginally.

This raises a host of related issues that we hope to address in future work. The most obvious deals with causality. Our results have virtually nothing to say about the mechanisms at work. As a result we are not in a position to say whether the intergenerational transmission of low income we have documented is a "relative" effect, or an "absolute" effect. That is, are the children of those in the bottom of the income distribution prone to low income as adults by virtue of the fact that their parents had low incomes relative to some subsistence level, or relative to the rest of the population? Would this tendency be eliminated by raising all low income households above subsistence (however defined), or would an increase in their standard of living just lead to a reshuffling of the problem leaving those whoever occupy the bottom rungs in the income distribution at risk? An estimate of the correlation of incomes across generations cannot answer such questions, and in future work we plan to examine the causes of intergenerational income mobility in more detail particularly the influence of post-secondary education, neighbourhoods and labour market networks, as well as immigration and geographic mobility.

But there are, even at a more basic level, several limitations to the findings we have presented. We have not, for example, distinguished income by type. In particular, we have treated government transfers, labour income, and all other sources of income equivalently. Is it possible that, for a given level of income, those earning a larger fraction from paid work are more likely to have children who advance up the income distribution? Is it possible that reliance on government transfers does just the opposite? Even without making such distinctions there is a need to extend the analysis to women and to assess the robustness of the findings to other measures of the household's resources (such as family income and needs adjusted family income) as well as to other types of households, particularly households headed by females and single parents.

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